

ABSTRACT OF THE DISCLOSURE

Optical performance monitoring of a dense wave division multiplex optical communication system is immune to effects of stimulated Raman scattering. Each wavelength is modulated by an orthogonal spreading code dither signal having a predetermined modulation index. At a receiver, a portion of the aggregate optical signal is tapped and passes through a wavelength dependant optical delay filter. For each wavelength, the aggregate signal is multiplied by a synchronized copy of a respective spreading code and an autocorrelator detects the modulation power of the spreading code dither. The system can also be deployed as an optical reflectometer. For each autocorrelator, an aggregate reflected signal is multiplied by a copy of a spreading code having a respective different time delay. The distance to a reflection can be estimated from the time delay that yields the highest autocorrelation value.